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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/780,134	02/17/2004	Steven A. Goldman	19603/3631 (CRF D-1997C)	2160

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EXAMINER	
ALLEN, MARIANNE P	

ART UNIT	PAPER NUMBER
1647	

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/780,134	GOLDMAN ET AL.	
	Examiner	Art Unit	
	Marianne P. Allen	1647	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-11 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-11 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-11 are pending.

Specification

The amendment filed 2/17/04 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: Insertion of information concerning the deposit has been made without any supporting documentation. No ATCC communication has been found in the application file. In the absence of an explanation and the supporting documentation, these insertions are deemed to be new matter.

Applicant is required to cancel the new matter in the reply to this Office Action.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,245,564. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are directed to methods of identifying and separating cell types using a promoter specific for a cell type and fluorescent protein.

With respect to instant claim 5, biolistic transformation is embraced by the broad claims of '564. This would have been a well known method of transformation at the time of the invention and therefore obvious.

Claims 1-11 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-28 of U.S. Patent No. 6,692,957. Although the conflicting claims are not identical, they are not patentably distinct from each other because both sets of claims are directed to methods of identifying and separating cell types using a promoter specific for a cell type and fluorescent protein.

With respect to instant claim 5, biolistic transformation is embraced by the broad claims of '564. This would have been a well known method of transformation at the time of the invention and therefore obvious.

Claim Rejections - 35 USC § 112

Claims 1-11 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods of separating cells using *in vitro* techniques as set forth below,

does not reasonably provide enablement for methods of separating cell using *in vivo* techniques. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

The specification does not enable methods of separating single mammalian neural cell types by introducing a nucleic acid molecule encoding a green fluorescent protein under control of a specific promoter to an intact organism, i.e. *in vivo*, and then separating the cells. Such methods of gene therapy would have been unpredictable at the time of the invention and the specification provides no guidance on performing such a method. This *in vivo* aspect of the invention as claimed is considered to be an invitation to experiment, particularly for progenitor cells which would include *in vivo* applications for embryonic or fetal organisms.

The specification identifies a handful of known tissue or cell specific promoters. However, the claims and specification are clearly directed at using promoters in the claimed method that are presently unknown or would have been unknown at the time of the invention. Particularly because claim 1 embraces any cell, at any stage of development, and from any organism, the claims are considered to be an invitation to experiment. First one of skill in the art would have been required to identify a cell of interest and then determine whether known promoter function only in this cell as required by the claim. If no known promoters would have been suitable, then one of ordinary skill would have been required to experiment to find a promoter that would have been appropriate. This is particularly true for progenitor cells that would not have been well characterized at the time of the invention.

The specification does not enable the claimed method as insufficient guidance is provided to permit one of ordinary skill in the art to practice the invention without engaging in undue experimentation. Applicant's specification is an invitation to experiment analogous to that in Genentech Inc. v. Novo Nordisk A/S, 42 USPQ2d 1001, 1005, which was not deemed to be enabling. "It is the specification, not the knowledge of one skilled in the art, that must supply the novel aspects of an invention in order to constitute adequate enablement. This specification provides only a starting point, a direction for further research."

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Chalfie et al. (U.S. Patent No. 5,491,084).

Chalfie et al teaches a general method for selecting cells expressing a protein of interest using a green-fluorescent reporter gene. (See column 4, lines 35-45.) The cells may be separated by a fluorescence-activated cell sorter (FACS). (See column 4, lines 1-12.) The cells may be primary mammalian cells. (See column 4, line 50.) The reporter system may use a regulatory element such as a promoter. (See column 2, lines 25-40 and 65.) Chalfie et al. identifies a homogeneous population of cells from a mixed population of cells.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chalfie et al. (U.S. Patent No. 5,491,084) in view of the instant specification at page 4.

Chalfie et al. is applied as above but does not specifically disclose viral mediated transformation, adenovirus mediated transformation, electroporation, biolistic transformation, or liposomal mediated transformation.

However, the instant specification at page 4 concedes that these are all transformation techniques that would have been known by one of ordinary skill in the art at the time of the invention. As such, it would have been obvious to use any transformation technique known at

the time of the invention within the method of Chalfie et al. as a matter of routine. One would have been motivated to use any known transformation technique for its known advantages.

Claims 1 and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Chalfie et al.(U.S. Patent No. 5,491,084), Zolotukhin et al. (U.S. Patent No. 5,874,304), Ronnett et al. (U.S. Patent No, 5,196,315), and Gloster et al. in view of Tenen et al. (U.S. Patent No. 5,502,176).

Chalfie et al. is applied as above. The reference does not specifically disclose separating a single neuronal cell type from a mixed population of mammalian brain or spinal cord cell types nor the α1-tubulin promoter.

Zolotukhin et al. discloses humanized green fluorescent protein and methods of use as a reporter gene. Particularly disclosed is using nerve specific promoters. Particularly disclosed is using this system to identify particular cell from within a population of cells. See column 5, lines 30-40; column 6, lines 30-50; column 7, lines 1-35; and column 8, lines 20-30. The reference does not specifically disclose separating a single neuronal cell type from a mixed population of mammalian brain or spinal cord types using the α1-tubulin promoter.

Ronnett et al. discloses the desirability of having a homogeneous cell line of mammalian neuronal cells to study biochemical, physiological, and pharmacological factors that regulate the function of human CNS neurons. (See column 1, lines 15-35.) The reference discloses development of two cortical cell lines by subcloning. (See column 2, lines 39-47, and column 3, lines 5-20.) The reference does not disclose using a reporter gene to facilitate sorting nor the α1-tubulin promoter.

Gloster et al. discloses the neuronal specificity of the α1-tubulin promoter.

Tenen et al. is relied upon to establish that it would have been well known in the art to use reporter gene systems to identify single cell types that have differentiated from stem cells or progenitors. Cell types may be separated by FACS. Tenen et al. discloses this concept in the context of myeloid cell types. See column 2, lines 3-8; column 4, lines 54-68; column 9, lines 10-20; and column 34.

It would have been prima facie obvious to employ the reporter gene system of Chalfie et al. and/or Zolotukhin et al. using the neuronally specific α1-tubulin promoter of Gloster et al. to transfect continuous cultures of cerebral cortex from brain tissue as disclosed by Ronnett et al. in order to specifically select neuronal cells from the mixed population. The method would have been more efficient than the subcloning disclosed by Ronnett et al. and more convenient as suggested by Chalfie et al. (see column 7, lines 50-55). One would have been motivated to do so based upon the desire for homogeneous cell lines as disclosed by Ronnett et al. The general strategy for using reporter genes to isolate single cell types differentiating from progenitors is taught by Tenen et al.

Claims 1 and 10-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Chalfie et al.(U.S. Patent No. 5,491,084), Zolotukhin et al. (U.S. Patent No. 5,874,304), Ronnett et al. (U.S. Patent No, 5,196,315), and Krebs et al. in view of Tenen et al. (U.S. Patent No. 5,502,176).

Chalfie et al., Zolotuhkin et al., Ronnett et al. and Tenen et al. are all applied as above. The references do not teach promoters specific for an oligodendrocyte.

Krebs et al. teaches the JC virus minimal core promoter that is specific for oligodendrocytes.

It would have been prima facie obvious to employ the reporter gene system of Chalfie et al. and/or Zolotukhin et al. using the JC virus minimal core promoter that is specific for oligodendrocytes to transfect continuous cultures of cerebral cortex from brain tissue as disclosed by Ronnett et al. in order to specifically select oligodendrocyte cells from the mixed population. The method would have been more convenient as suggested by Chalfie et al. (see column 7, lines 50-55). One would have been motivated to do so based upon the desire for homogeneous cell lines as disclosed by Ronnett et al. The general strategy for using reporter genes to isolate single cell types differentiating from progenitors is taught by Tenen et al.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne P. Allen whose telephone number is 571-272-0712. The examiner can normally be reached on Monday-Friday, 5:30 am - 2:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brenda Brumback can be reached on 571-272-0961. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Marianne P. Allen 9/1/06

Marianne P. Allen
Primary Examiner
Art Unit 1647

mpa